

Capturing Changes in Healthcare during COVID-19 – A Physiotherapy Services Case Study

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ABSTRACT

During the UK's initial response to the COVID-19 pandemic, the National Health Service witnessed drastic and rapid changes to the way work was done. Not only were changes implemented at an organisational level, but at a more local level, staff across the service adapted and developed methods of coping to keep the healthcare system functioning. As a result of this, ideas and innovations that emerged during the initial response may be helpful not only in the immediate future but also in the longer term. This study applied a systems approach to explore the changes and adaptations to work in the Physiotherapy department of a large acute trust in the UK during the initial response to COVID-19 (April 2020). Using online focus groups, the changes to the work structure, challenges and aspects that worked well were explored with 26 physiotherapy staff. The qualitative data was analysed using thematic analysis to determine the common themes across the focus groups. By utilising a systems approach, a better understanding of the effect of the changes and how they may be connected to challenges and aspects that worked well could be identified. The depiction of the work system also put into context some of the outcomes experienced at this time. Based on these results potential considerations for 'wave 2' were extracted and consisted of general work-system aspects and pandemic-specific aspects.

KEYWORDS

Systems Approach, COVID-19, SEIPS 2.0, Physiotherapy Services

Introduction

During the UK's initial response to the COVID-19 pandemic, the National Health Service (NHS) witnessed drastic and rapid changes to the way work was done. Such rapid changes in an organisation of this size may have been inconceivable before the pandemic and furthermore it was taking place against a backdrop of drastic changes to the nation's daily life.

Despite the difficult times, staff across the service adapted and developed methods of coping to keep the healthcare system functioning. Resilience is defined as 'the intrinsic ability of a system to adjust its functioning prior to, during, or following changes' within the system to maintain the required operations (Hollnagel, 2011, p. 16). This was shown not only at an organisational level, but also at numerous other system levels including on a staff level. Ideas and innovations that emerged during the initial response may be helpful not only in the immediate future including for 'wave 2' but also in the longer term. Furthermore, as this pandemic is one of largest experienced by staff in this generation, and has been a new experience for healthcare systems worldwide, this initial response provides crucial information including the characteristics of phases associated with pandemics, which are essential and necessary for planning response strategies to ensure successful outcomes (Garrett & Caldwell, 2009).

Aims and Objectives

This study applied a systems approach to explore the changes and adaptations to work during the initial NHS response to the COVID-19 pandemic (April 2020). The purpose was to capture the adaptive ways of working within one service, namely the Physiotherapy department at one large acute NHS hospital trust in the UK. The department provides physiotherapy support for patients within the acute hospital setting and staff play a key role in the care and rehabilitation of patients with and recovering from COVID-19. The service has more than 50 staff, across two campuses and works across intensive care, high dependency, respiratory medicine, oncology, haematology, renal medicine, infectious diseases, acute admissions, surgical and outpatient services. This department provides a fully rotated five day service and a four person rotated weekend service. On call cover is provided overnight seven days a week.

The objectives of this study included capturing current work and staff's experiences of work during COVID-19 pandemic, use a systems perspective to depict the changes in the system and new ways of working, and compile considerations for preparation for a second 'wave' of this pandemic. This more thorough understanding may assist in promoting organisational learning, as well as understanding the implications and effects these adaptations may have on the larger system and whether these may be sustainable and suitable for future work.

Method

A qualitative exploratory approach was adopted using focus groups to explore the changes to the work structure with physiotherapy staff for the period of April to July 2020. Each online focus group had a maximum duration of 60 minutes and was facilitated by a member of the Trent Simulation and Clinical Skills Centre (TSCSC) human factors team. The focus groups were recorded, with appropriate consent, and analysed by TSCSC team. The focus groups were asked to explore '*What were the changes and adaptations to work during the initial NHS response to the COVID-19 pandemic (April - July 2020)?*' The questions that guided the online focus groups included:

1. What usual (pre-COVID-19) tasks are working more efficiently at the moment due to the unusual situation? Why may this be the case?
2. What strategies have you or your team developed to anticipate and respond quickly to situations (flexibility)?
3. What has the current work climate been like?
4. What aspects have been really challenging?

The qualitative data was analysed using thematic analysis (Braun & Clarke, 2014) to determine the common themes across the focus groups and the Systems Engineering Initiative for Patient Safety (SEIPS) 2.0 model (Holden et al., 2013) was selected to provide the structure for the systems analysis. The SEIPS 2.0 model (Holden et al., 2013) provides a useful conceptual up-to-date model that assists the study of work done by healthcare professionals and consists of three key components - the work system, work processes and outcomes (Carayon et al., 2014). It is essential to understand all of these elements as the work system elements shape the process elements which in turn shape the outcomes (Holden et al., 2013). The anonymised results were presented back to staff who participated in the focus group for sense checking.

Participants

Eight online focus groups, using Microsoft Teams, were conducted with a total of 26 physiotherapy staff. Of the 26 participants, 7 staff were redeployed staff from outpatients and in patient elective services such as orthopaedics, whose work had been paused. The remaining participants were 12 physiotherapy staff from Critical Care and Surgery, 4 from Medicine and Associated Specialities and 3 from Respiratory Physiotherapy. The staff's Agenda for Change banding ranged from Band 2

to Band 8 with bands 2 to 4 representing physiotherapy assistants (unregistered staff), and bands 5 to 8 registered healthcare professionals that include team leaders and rotational roles. Across all 26 participants, the mean age of the participants was 30.59 years (standard deviation ± 6.57). The mean number of years involved in patient care was 8.11 years (± 7.22) and the mean number of years in the current position was 5.33 years (± 7.19).

Results

By adopting a systems approach to capturing these adaptations, they were understood from the perspective of the staff and the larger system in which they occur. The results were organised into the following categories:

1. Changes within the work system
2. Challenges staff faced during this time
3. Aspects that worked well
4. The challenges and aspects that worked well within the system context
5. Considerations for 'wave 2'

Changes within the work system

During the initial response to the COVID-19 pandemic, changes that influenced frontline work occurred at all levels of the work system. Furthermore, numerous changes related to other changes that occurred at the different system levels. These have been summarised in Figure 1 below.

The planned changes at a national and organisational level to prepare the healthcare system so it could respond to the pandemic included an alteration in the type of cover provided, redefined service scope, staff redeployment and the requirement of Personal Protective Equipment (PPE) use. As a result of national and organisational changes, to be able to deliver these changes, the cover provided was changed at a departmental level (e.g. physiotherapy offering evening cover) including a reduction in the services offered and staff rotations not occurring, which also then resulted in changes at an individual work level. The changes at an individual work level included a change of work pace, number of patient contacts, time the patient contacts could occur, new team structure, an expanded team, change to the working hours and days, increased co-working and changes to the weekend work prerequisites. These were made possible by further changes at an organisational level, namely due to the increased staff availability as a result of redeployment from cancelled outpatient and elective surgery areas.

The effect of external social changes, in addition to social distancing, included the effect of lockdown, increased responsibilities at home such as childcare, and the effect of the healthcare system being in the 'public eye' on staff. The effect of lockdown influenced staff's availability as during this time there were no social commitments and staff felt they could be available at times that under normal conditions they would have other plans and commitments. This is highlighted by the following quote from one of the focus groups:

'The shifts we were doing ... it was a lot easier because of lockdown in that no one had any weekend plans, and no one had any plans for the evenings... As soon as lockdown started to ease, it became hard for a lot of people to carry on that shift pattern.'

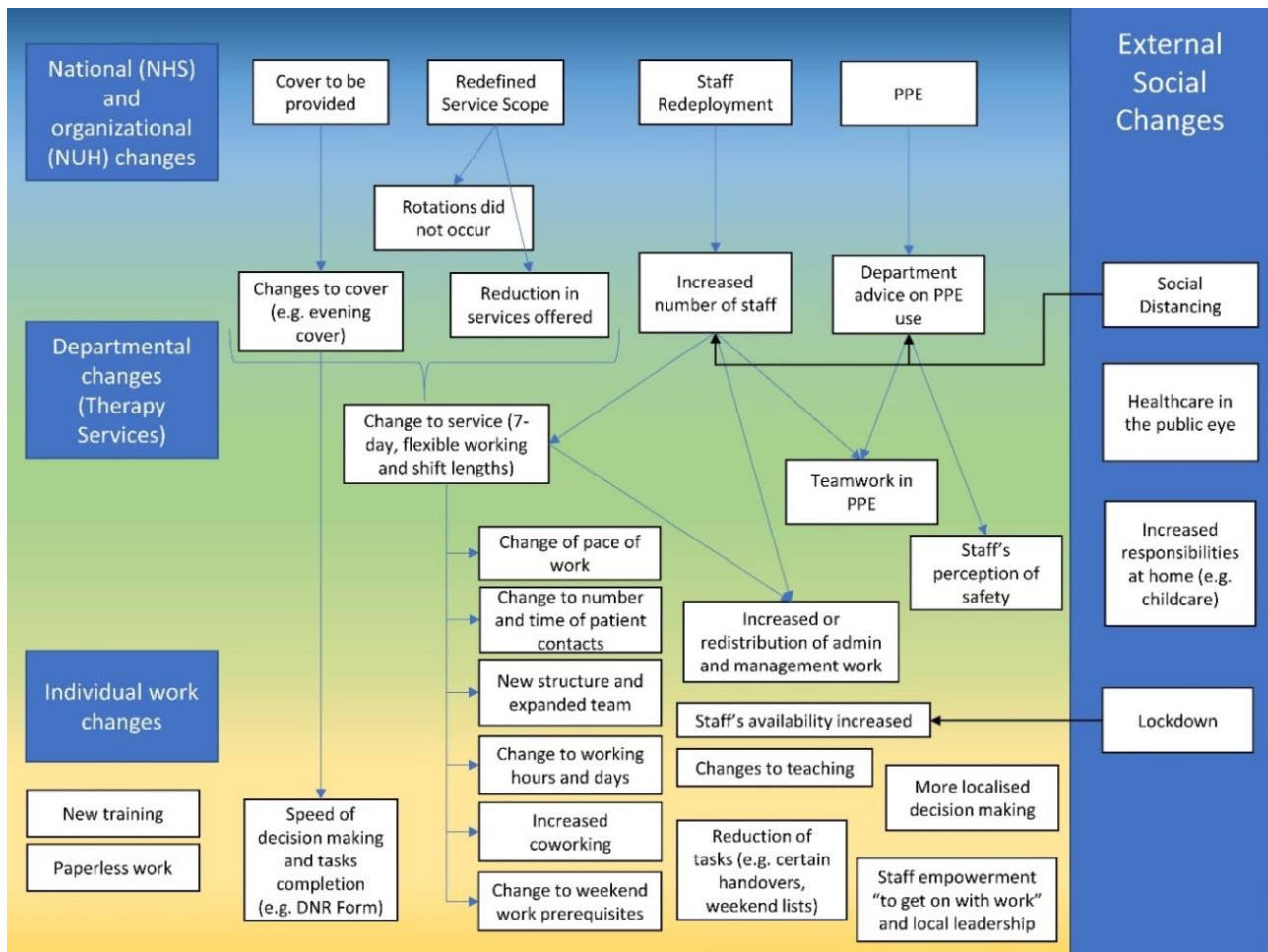


Figure 1: The cross-system changes and how these may be connected to changes in other system levels.

Although the attention from the media and the healthcare system being in the 'public eye' may have meant to show appreciation for NHS staff, this had mixed effects on staff and may have negatively affected staff wellbeing. This is highlighted in the quote below:

'...and I think there was a lot of unintentional pressure. Of like the Thursday Clap the NHS heroes. I think we all feel like we needed to be doing more. Like I can't take time off because I don't want to leave my team in jeopardy.'

Some of the changes that occurred were planned or structured changes, whereas some changes were as a result of other changes and potentially could not be anticipated or planned for. These have been summarised in Table 1.

Challenges

The challenges staff faced during this period emerged not only from this new patient type (COVID-19), but also as a result of the changes in the work system in response to the pandemic. Challenges resulted due to increased staff, as a result of redeployment, and space limitation brought on by social distancing, including the layout of patient bay areas and insufficient office and staff break rooms. These factors initially hindered treatment and affected organisation of staff scheduling. New challenges arose as a result of PPE, these included and were associated with the constant changes to PPE guidelines that made staff feel unsure and unsafe, and with communicating and teamwork as

Table 1: Examples of the planned or structured changes and the unplanned or unanticipated changes per system level that occurred during the initial response to the COVID-19

System Level	Planned or Structured Changes	Unplanned or Unanticipated Changes
National (NHS) and Organisational (NUH)	<ul style="list-style-type: none"> Type of cover to be provided Redefined service scope Staff redeployment Use of PPE 	<ul style="list-style-type: none"> Frequency of changes to guidelines and advice provided PPE shortages
Interdepartmental	<ul style="list-style-type: none"> Equipment provided quickly 	<ul style="list-style-type: none"> Greater appreciation and recognition of other services Individual interpretation of guidelines
Departmental (Therapy Services)	<ul style="list-style-type: none"> Changes to shift length Changes to service cover Changes to team structure 	<ul style="list-style-type: none"> Change to handover approach for the weekend
Individual Work	<ul style="list-style-type: none"> New teams formed Increased or redistribution of admin work Increased information transfer 	<ul style="list-style-type: none"> Increased autonomy 'Just do it' approach Effect on staff's ability to take leave and recover from work Fatigue
External social aspects	<ul style="list-style-type: none"> Lockdown Social distancing 	<ul style="list-style-type: none"> Healthcare in the public eye Increased responsibilities at home

there were difficulties in determining staff identity and roles. An example of one of the challenges associated with PPE and how this may affect teamwork is highlighted in the quote below:

'I feel like I didn't get people to know who I am because of all the PPE and because we did like a month normal working and then straight into full PPE. So, if you have to have different physios coming in all the time... that there's a barrier in terms of the communication and trust and the teamwork...'

As a result of the numerous organisational changes, there was an increase in administrative work which was perceived as a challenge. Staff wellbeing was also challenged, which may have occurred due to the effect of perceived social responsibilities, a reluctance to take time off work, staff's inability to 'switch off' when not at work, mental and physical burn out, fatigue and the fear associated with COVID-19 including the conflict between caring for patients and putting oneself or one's family at risk. An example of a reluctance to take leave associated with anxiety is highlighted in the quote below:

'So, I think it got to the middle and a lot of us were very tired and feeling just that burnt out, but not from having done anything. So I think there's a lot of reluctance to take annual leave or time off.... I think a lot of people had to be convinced to just take a break from what was just a massive change and that the mental strain was a lot.'

Aspects that worked well

Aspects that worked well emerged due to the changes in the work system and in response to some challenges staff faced. These included the development of tools to aid the response to the pandemic (e.g. PPE on-call bags, use of WhatsApp to improve communication), changes in work patterns that allowed more efficient working (i.e. longer working days, flexible and 7-day working), enhanced teamwork and structure with positive roles and responsibilities underpinned by understanding the team's strengths and weaknesses. Furthermore, devolved decision making and reductions in hierarchy and bureaucracy allowed localised decision making and enhanced local leadership and the

setup of new clinics (e.g. Intensive Care Unit follow up clinic). An example of improved teamwork was the enhanced leadership from the Band 7s highlighted in the quote below:

‘And I think the leadership from the band 7s has been really good to sort of help us out, organise us, prioritise folks and attention and it has given a structure.’

Understanding the challenges and aspects that worked well within the system context

One of the largest planned changes at a departmental level was the restructuring of services offered by Physiotherapy. This included providing a seven-day service, which resulted in a change in shift pattern that included staff starting at different times and increased cover so that more hours were covered in a day. As a result of this departmental change, not only did new challenges arise but new ways of working that functioned really well were identified. These have been grouped to form a general description of the work system as depicted in Figure 2.

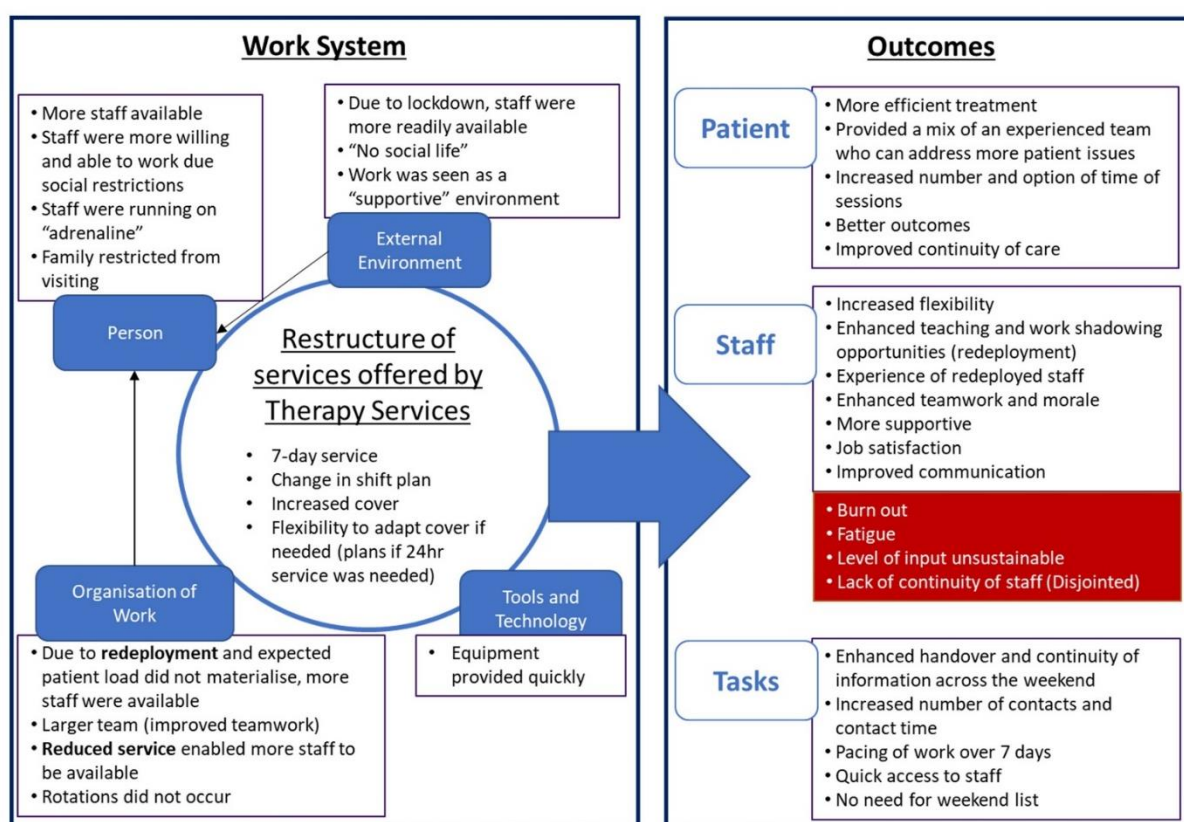


Figure 2: The changes to the work system, the challenges, aspects that worked well and outcomes for the restructuring of services offered by Physiotherapy during the initial response to the COVID-19 pandemic.

Positive outcomes were experienced for the completion of tasks, for staff and for the patient. The positive patient outcomes identified included not only enhanced patient treatment but also increased number of contacts as well as an increase in the number of potential contacts. This latter point refers to the opportunity for therapy input for the patient being provided several times a day, whereby if the patient was not ready for therapy, staff could return later in the day. An example of how this new structure affected outcomes for the patient is highlighted in the quote below:

‘we could offer patients treatments outside of the hours that we would normally... they might not be ready to do rehab until later on in the evening, and so we’ve done it then.’

The positive staff outcomes included increased flexibility, enhanced teaching opportunities from redeployed staff, enhanced teamwork and morale as well as improved communication and job satisfaction. An example of increased job satisfaction is highlighted in the quote below:

'Where as being in at the weekends, having extra staff... that really helped with your like how much you enjoy work and the stress levels of work and like it made Monday morning a lot nicer for you as a therapist.'

However, there were also negative outcomes for staff including burnout, fatigue, the lack of continuity of staff made work disjointed and the level of input was not sustainable. An example of the negative staff outcome is highlighted in the quote below:

'I think there were certain times... I think everyone broke at some point. You know, either physically or mentally.'

Considerations for wave 2

Based on the challenges that staff experienced and the aspects that worked well during the initial response to the COVID-19 pandemic, potential considerations for 'wave 2' could be extracted. Seven themes (see table 2, below) were identified of which two referred to constant aspects within the work system and five referred to considerations that have emerged during the initial response to the pandemic.

Table 2: Considerations identified from the results of the focus groups for 'wave 2'.

	Theme	Considerations
Work System Constants	Clear and Consistent Guidance, Advice and Information	<ul style="list-style-type: none"> • Consistent and definitive information on guidance for infection control • Clearer guidance on staff exposure • Ensure consistent communication regarding PPE across the Trust • Ensure consistent and clear guidelines on PPE use across all areas
	Staff wellbeing	<ul style="list-style-type: none"> • Actively ensure rest and recovery (annual leave , protected time off) • Debriefing (both hot and cold debriefing) - Staff need an opportunity and access to discuss what has happened (personal and team level). Cold debriefing has occurred in the initial response to COVID-19.
Emergenced Considerations	Visibility of management team	<ul style="list-style-type: none"> • Clear, consistent, and regular updates in crisis times (even if there is nothing to update on)
	Changes to service structure	<ul style="list-style-type: none"> • Should the need be identified, deciding earlier to move to a different rostering system
	Redeployed staff	<ul style="list-style-type: none"> • Develop an implementation and exit strategy for redeployed staff.
	Staff that returned for the pandemic	<ul style="list-style-type: none"> • Staff would need to maintain their competencies. How can one prevent the loss of the upskill training that occurred during this time?
	PPE	<ul style="list-style-type: none"> • Ensure sufficient supplies of PPE • Ensure information communicated is evidence-based • Unified plan

The findings from this study echo some of those of Healthcare Safety Investigation Branch report (HSIB, October 2020) including the lack of clarity and clear agenda on PPE, how the design of the environment impacted on staff's ability to care for patients, with non-clinical areas not designed for staff needs, a lack of national direction and clarity regarding infection control and challenges for NHS staff to implement guidelines due to the volume and speed of their issue.

Although it has been acknowledged that the human factors of pandemic response needs to consider that the pandemic may span several months and occur in numerous waves (Garrett & Caldwell, 2009), the results suggest that the initial response had not actively considered this. Although the

initial response mounted against the pandemic was strong, considering staff wellbeing and the status of postponed non-critical services, it raises questions about the response to the second and further waves. This has been acknowledged by HSIB who identified eight safety recommendations relating to organisational, environmental, policy and staff wellbeing and the need for a co-ordinated national approach in the short to medium-term as well as preparing for a longer-term response (HSIB, 2020).

Conclusions

By identifying the changes, challenges and aspects that worked well and utilising a systems approach, a better understanding of the effect of the changes and how they may be connected to challenges and aspects that worked well could be identified. The depiction of the work system also puts into context some of the outcomes experienced at this time. Based on these results, potential considerations for ‘wave 2’ could be extracted and included general work-system aspects and pandemic-specific aspects. Although a lot of positive elements were identified by staff during the NHS’s response to the initial outbreak of COVID-19 in the UK, it is important to bear in mind the system inputs that allowed for the changes that resulted in the positive elements and the effect of the rapid change on staff’s wellbeing and the ability to maintain this.

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